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ABSTRACT

A study described the characteristics of sociocognitive conflicts and the discourse associated with such conflicts, and determined how the cognitive processes exercised during discussion were internalized. Participants were 97 fourth-grade students and 6 elementary classroom teachers. Peer-led and teacher-led discussions of texts were examined to determine the role of sociocognitive conflict in these discussions. Constant-comparative methods revealed three categories of sociocognitive conflict: conflict within self; conflict with others, and conflict with text. Sociolinguistic analyses revealed that students' discourse in peer-led discussions was significantly more complex than in teacher-led discussions. The Cognitive Conflict Scenario revealed that students in peer-led discussions were able to recognize and resolve sociocognitive conflicts better than students in teacher-led discussions. Findings suggest that peer-led discussions produced richer and more complex interactions than did teacher-led discussions and resulted in the internalization of the cognitive processes associated with engaged reading. (Contains 61 references, 5 tables and 6 figures of data; the Cognitive Conflict Scenario Task Pre/Posttest and the scoring rubric are attached.) (RS)

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Sociocognitive Conflict in Peer-Led and Teacher-Led Discussions of Literature

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Spring 1994

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Abstract. The purpose of this study was to describe the characteristics of sociocognitive conflicts and the discourse associated with such conflicts, as well as to determine how the cognitive processes exercised during discussion were internalized. Participants were 97 fourth-grade students. Peer-led and teacher-led discussions of text were examined in order to determine the role of sociocognitive conflict in these discussions. Constant-comparative methods revealed three categories of sociocognitive conflict: Conflict within Self, Conflict with Others, and Conflict with Text. Sociolinguistic analyses revealed that students' discourse in peer-led discussions was significantly more complex than in teacher-led discussions. The Cognitive Conflict Scenario Task, an instrument designed by the first author, revealed that students in peer-led discussions were able to recognize and resolve sociocognitive conflicts better than students in teacher-led discussions. These results suggest that peer-led discussions produced richer and more complex interactions than did teacher-led discussions and resulted in the internalization of the cognitive processes associated with engaged reading.

It is well documented that the amount of reading done both in school and out of school is positively related to reading achievement, yet students report little reading in either context (Foertsch, 1992). In fact, interest in reading declines substantially as students get older (Guthrie & Greaney, 1991; Langer, Applebee, Mullis, & Foertsch, 1990). Moreover, although students have learned to identify and to understand literal aspects of text (Foertsch, 1992), it appears that many have not achieved the higher level of literacy required to become productive members of modern society (The Secretary's Commission on Achieving Necessary Skills [SCANS], 1991). For example, there is evidence that students have difficulty examining texts critically from more than one perspective (Langer, Applebee, Mullis, & Foertsch, 1990), and that they have difficulty constructing thoughtful responses and defending their interpretations (Foertsch, 1992).

In order for students to become capable of constructing and examining meaning, they must engage with textual ideas. Therefore,

exploring the underlying processes and the environments that are most conducive to enhancing engaged reading becomes important. Literary discussions offer one environment in which students and teachers can construct meaning collaboratively. However, there are many forms of literary discussion, and it is unclear how different types of participation in those discussions affect students as they become engaged with texts. Sociocognitive conflict is one frequently occurring aspect of participation. This conflict is a state of cognitive unrest that an individual confronts while participating in social interactions (Doise & Mugny, 1984; Mugny & Doise, 1978). The purpose of this study was to investigate the role of sociocognitive conflict in peer-led and teacher-led discussions of narrative text.

This investigation drew on a broad spectrum of theory and research, including reader response theories of literary criticism, social cognitive theories of learning and development, and theories of conceptual change in classroom learning. A discussion of the research related to various classroom contexts for literary discussions follows. Based on the theory and research presented, a heuristic model of sociocognitive conceptual change in reading is then proposed.

Theoretical Background

Rosenblatt's (1938/1976) transactional view of literacy highlights the dynamic interplay between reader, text, and context in the construction of meaning. According to this view, meaning resides in the reader and how the reader interprets texts, a point agreed upon by many literary theorists (e.g., Bleich, 1978; Fish, 1980; Iser, 1980). Constructing meaning, however, presupposes that one's ideas about, and interpretations of texts are not static but in a continual state of flux as new ideas, feelings, and interpretations are contemplated. Thus, as readers process texts, they experience "momentary understandings" (Langer, 1992, p. 37) that may change as a text unfolds. Iser (1980) has contended that this process of updating one's interpretation is essential to the creation of a literary work.

Kuhn (1989) has theorized that in attempting to make sense of one's environment, one processes incoming data and constructs mental models based upon these data. As texts are read, mental models are held in a highly accessible foreground and are updated as new information is encountered (Glenberg, Meyer, & Lindem, 1987; Morrow, Greenspan, & Bower, 1987). Thus, as Kuhn (1989) has argued, the creation of a mental model not only requires that theories be constructed, but that they be modified or reconstructed concurrently as discrepant evidence accumulates. Central to the process of creating conceptual change is the notion that conflicts must be confronted directly. If conceptual change is to occur, students must verbalize their own thoughts in order to recognize that another interpretation differs from their own (Kuhn, 1989; Newkirk, 1984; Posner, Strike, Hewson, & Gertzog, 1982; Sweigart, 1991; Yager, Johnson, & Johnson, 1985).

When previous interpretations of text are challenged by discrepant evidence, the reader experiences *cognitive conflict* (Berlyne, 1971). Cognitive conflicts of this nature are *intrapersonal* in that they occur within the reader. Readers who are unable to regulate

their comprehension or who attend primarily to the words on the page rather than to the construction of meaning, have difficulty amending their interpretations independently (Paris & Oka, 1989).

Vygotsky (1978) has theorized that children can internalize higher cognitive functions, such as the ability to develop a literary interpretation, by moving from an *inter*personal plane, in which new notions of a literary work would be socially mediated via modeling, to an *intra*personal plane, in which thinking and reasoning about a literary work in *new* ways have become internalized as a result of persistent exposure to modeling.

Fish (1980) has contended that, as "interpretive communities" interact, new interpretations of a text coalesce from divergent views about it. Conflicts of this type, that emerge in a social milieu as readers encounter alternate interpretations that force them to reconsider and update their own interpretations of text, are called *sociocognitive conflicts* (Bloome, 1985; Doise & Mugny, 1984; Mugny & Doise, 1978) and are inherently *interpersonal*.

Classroom Contexts for Literary Discussions

Sociocognitive conflict can be valuable in that it encourages thoughtful reflection on a variety of interpretations rather than reliance on a single, passive one. Langer (1992) has suggested that the New Critics' notion of a single, correct interpretation of literature (see for example, Richards, 1929; Wimsatt & Beardsley, 1954) has been pervasive in classrooms and has encouraged a distorted image of what reading and meaning-making is to students. In fact, observational studies of elementary classrooms have found that typical classrooms are characterized by a preponderance of teacher talk, literal questions, and unnatural conversation rather than by student involvement and engagement in reasoning and thinking operations (Barr & Dreeben, 1991; Gall & Gall, 1976; Weinstein, 1991). Identifying sources of comprehension failure and making appropriate repairs often become the focus of postreading discussions of literature, and the initiate-respond-evaluate (IRE) participation structure, as it occurs in the traditional classroom, tends to focus on literal questions as a means of forming impressions regarding students' comprehension (Cazden, 1986; Mehan, 1979). Such practice implies that reading is unidirectional from the text to the reader and that meaning is derived solely from texts.

Students and teachers in such discussions tend to assume static roles that are defined by the accepted structure imposed on the group (Baxter, 1988). Therefore, students come to expect that the teacher will assume the role of leader while they assume the role of respondents (Gall & Gall, 1976). In the role of respondent, students become concerned with their performance during the discussion. The goal of creating meaning collaboratively is thereby circumvented by a more performance-based view of the purpose of the discussion. Students in such environments become passive (Good, Slavings, Harel, & Emerson, 1987) and come to view the teacher as the interpretive authority rather than relying on their own ideas to construct meaning.

Although identifying sources of student misunderstanding is often the focus of traditional teacher-led discussions, such discussions

may not be optimal for helping students internalize the process of recognizing and resolving their own misunderstandings. During teacher-led discussions of literature, in which the agenda for what is discussed is often set by the teacher, students' misunderstandings of text may remain unresolved unless the teacher, by chance, happens to ask questions that reveal them. In fact, Dillon (1985) has suggested that questions designed to assess comprehension thwart discussion. However, some (e.g., Carlsen, 1991; Mishler, 1978) have suggested that the context within which a question is asked, as well as who asks the question, are of primary importance. Such considerations support the notion that power, interpretive authority, and the culture of the classroom affect the nature of a discussion (Alvermann, O'Brien, & Dillon, 1990) and not merely the asking of questions.

Thus, the type of discussion that operates during literary discussions may play a significant role not only in shaping a student's perception of reading but in how texts are processed. Current research on classroom discussion (e.g., Alpert, 1987; Eeds & Wells, 1989; O'Flahavan, Stein, Wiencek, & Marks, 1992) has found that decentralized discussions in which the teacher abandons the role of leader or inquisitor and assumes a more restricted role as co-collaborator in the construction of meaning result in conversations about text that engage students in higher levels of processing, foster meaning construction, and evoke conversation that is more natural. In such discussions, the students, rather than the teacher, set the agenda for the discussion. Despite the teacher's restricted role, comprehension and literary understanding still take place, and the extensive amount of talk that students do in such discussions helps them to confirm, extend, and modify their interpretations of texts, thereby enhancing understanding (Eeds & Wells, 1989; Leal, 1992).

Doise and Mugny (1984) have suggested that cognitive conflict is more likely to be confronted in a social environment because the child is confronted with a social conflict as well. Children may not be able to deny or ignore cognitive conflict as easily when in a social context. Likewise the potential for incongruity and sociocognitive conflict emerges in a classroom culture where multiple interpretations of text are encouraged and tolerated.

There is evidence that the discourse associated with conflict has distinct organizational patterns (Eisenberg & Garvey, 1981; Goodwin & Goodwin, 1990) and codifiable resolutions that are informative in terms of social interaction patterns (Goodwin, 1982; Vuchinich, 1990). However, generalizations to, and implications for, talk during conflict in classroom cultures remain unexplored.

A Heuristic Model of Sociocognitive Conceptual Change in Reading

During interactive literature discussions among children, episodes of sociocognitive conflict are frequent. Such episodes involve the restructuring of textual interpretations resulting from the acquisition of new information. Figure 1 presents a heuristic model of how a conflict-evoking event may be recognized and acted upon by a member of an interpretive community as he or she constructs meaning. The model suggests that in order for knowledge to be restructured, a conflict-evoking

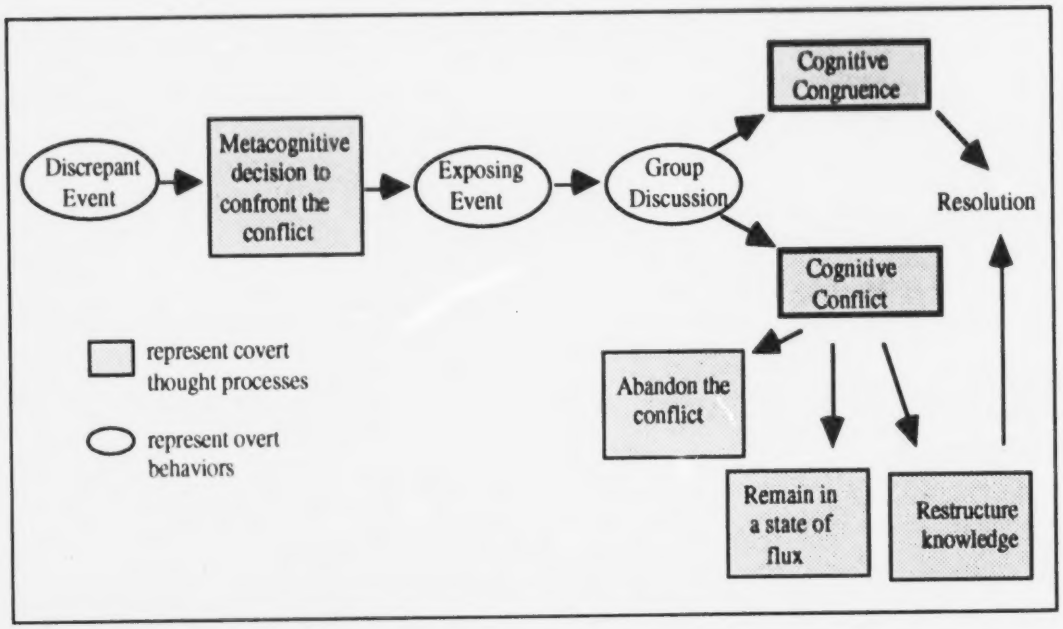

Figure 1. A Heuristic Model of Sociocognitive Conceptual Change in Reading

"discrepant event" must be recognized by the child. This discrepant event may be in the form of a statement or question by a peer, a directive to examine a picture in the text, the deliberate rereadings of portions of text by the child, and so forth. The discrepant event initiates cognitive unrest, dissatisfaction, or doubt in the child's mind concerning his or her own interpretation of a text. A discrepant event may be ignored due to factors such as lack of motivation, frustration, or poor self-esteem; or, it may not be confronted because it is not recognized. A restructuring of knowledge, however, can only occur once a metacognitive decision to confront the inconsistent information has been made (Kuhn, 1989; Vosniadou & Brewer, 1987).

During postreading discussions, the only way that an observer knows with certainty that the inconsistent information is disruptive to an individual is when the individual makes the decision to enter into the discussion and confront the conflict. A part of this metacognitive decision involves a form of cognitive rehearsal whereby the individual's thoughts coalesce. Because a metacognitive decision to enter into the discussion cannot be observed, it is presumed that the decision takes place just before the "exposing event." The exposing event is the indication to the observer that a conflict is being confronted and that the individual's conceptions have been made public. This event is identifiable when the individual enters the discussion. The exposing event may begin

when the individual makes a statement such as "I thought that — " or "I disagree with — ." Likewise, the exposing event may begin with a question such as "I don't understand why — ?" which reveals the conflict.

The ensuing discussion of the conflicting information may follow one of two paths for the child: cognitive congruence or cognitive conflict. Should others' comments, references to text, and questions confirm the child's original thought, cognitive congruence would occur. Thus, cognitive congruence occurs when an individual's thoughts and ideas are supported by confirmatory evidence presented in the discussion. Cognitive congruence leading to resolution might also occur if the child's statement or question challenged lines of thought presented previously in the discussion, leading others in the interpretive community to reorganize their conceptions but maintaining congruence with the child's original interpretation.

Should the other group members' comments, references to text, and questions provide contradictory evidence that challenges the child's original interpretation of text, the model suggests that the path of cognitive conflict would then be followed. The child may experience cognitive turmoil as information and points of view are presented that contradict the original interpretations. Presented with new information and stances, the child may do one of three things: (a) restructure knowledge and interpretations to coincide with the new information, (b) remain in a state of flux, or (c) decide to abandon the controversy leaving knowledge structures as they were.

According to the model of sociocognitive conceptual change in reading, in order for misunderstandings, or episodes of sociocognitive conflict to be resolved, the child must recognize and act upon the cognitive conflict effected by a discrepant event. The model suggests that this event may create cognitive unrest, dissatisfaction, or doubt in the child's mind concerning his or her interpretation of a text, thereby evoking the need to confront the conflict. Thus, when students engage in discussions that provide more opportunity for verbalization, they may be more likely to recognize and resolve episodes of sociocognitive conflict.

The Need for Research on the Nature of Sociocognitive Conflict

When students are participants in an interpretive community intent on the construction of meaning, they have the opportunity to share personal reactions, recall portions of text, extend one another's ideas, clarify responses, and verify or reject interpretive hypotheses based upon texts. These outcomes are harmonious with the ideals of engaged reading (Alvermann & Guthrie, 1993) and the transactional theory of response to literature (Rosenblatt, 1938/1976). By investigating the nature of sociocognitive conflict, the discourse that occurs during sociocognitive conflict, and students' ability to recognize and resolve such conflict in various types of discussions, researchers and teachers can gain insight into the process of meaning construction and learn how meaning is internalized by students.

The purpose of this investigation was to explore and describe sociocognitive conflict among fourth-grade readers in peer-led and teacher-led discussions of narrative text.

Specifically, this study examined: (a) the characteristics of sociocognitive conflict during discussion, (b) the discourse that occurred during sociocognitive conflict, and (c) students' ability to recognize and resolve sociocognitive conflict. It was hypothesized that increased participation in extended peer-led, decentralized discussions about literature would enable students to confront their own misunderstandings of text by exposing them to interpretations that they might not have encountered on their own. Students who experienced working collaboratively to alter original interpretations and construct new ones would be more likely to develop cognitive structures that would enhance their ability to recognize and resolve sociocognitive conflict than would students in centralized, teacher-led discussions.

METHOD

Design

A pretest-posttest control group with matching design was employed in this investigation. Independent variables were *treatment* condition and (classroom) *teacher*. Treatment conditions consisted of a peer-led experimental condition and a teacher-led control condition. Teachers in each of six classrooms implemented both conditions in their classrooms. Treatments were randomly assigned to two groups of students matched on reading comprehension and ability to recognize and resolve sociocognitive conflict in each classroom. Although this investigation employed a quasi-experimental design, its validity was enhanced by the use of three forms of analysis in order to provide a multifaceted view of the data. These analyses included: (a) qualitative analysis of episodes of sociocognitive conflict, (b) sociolinguistic and statistical analysis of the discourse associated with sociocognitive conflict, and (c) statistical analysis of students' ability to recognize and resolve episodes of sociocognitive conflict as measured by the Cognitive Conflict Scenario Task (CCST).

Participants

Ninety-seven fourth-grade students and six classroom teachers in a suburban elementary school on the eastern coast of the United States participated in the 11-week investigation. The population the school serves consists primarily of middle-class and working-class families. The area is a working community for fishermen and a bedroom community for two nearby metropolitan areas.

Teachers were trained to implement in their classrooms both teacher-led and peer-led conditions with two heterogeneous groups composed of average and below-average readers. Each group was matched on reading comprehension, as measured by their performance on short-answer comprehension questions and on ability to recognize and resolve sociocognitive conflicts as measured by Form A of the Cognitive Conflict Scenario Task (see Appendix A). Groups did not differ significantly on comprehension ($F(1,85) = 0.41, p < .53$) or ability to recognize and resolve sociocognitive conflicts ($F(1,85) = 0.10, p < .75$).

Materials and Procedure

Twelve pieces of literature were selected for use from two fourth-grade basal reading series: Harcourt, Brace, & Jovanovich (1989) and

Macmillan (1986). Teachers in the study chose the selections they thought students would (a) find interesting and thought-provoking, and (b) be able to read in one 20-minute sitting. Students read selected pieces of literature, such as "McBroom Tells the Truth" by Sid Fleischman, "Something Strange at the Ballpark" by Elizabeth Levy, "If You Say So Claude" by Joan Lowery Nixon, "Soup's New Shoes" by Robert Newton Peck, and "The Case of the Crowing Rooster" by Donald Sobol.

Cognitive Conflict Scenario Task. The Cognitive Conflict Scenario Task (CCST) is an individually administered interview task designed by the first author (see Almasi, 1993) to measure how well students can recognize and resolve sociocognitive conflict during fictitious classroom discussions (see Appendix A). Form A and Form B of the measure contained four parallel, open-ended scenarios. Scenarios were derived from authentic episodes of sociocognitive conflict that had occurred in a pilot investigation. Each scenario used in the final forms of the measure was judged by three experts to be a clear example of sociocognitive conflict. Interrater agreement was 1.00.

Reliability was determined with students from a pilot investigation. The students in the pilot investigation were similar to those in the present investigation in terms of socioeconomic status, age, and ability levels. Internal consistency of all eight episodes was measured using Cronbach's alpha ($\alpha = 0.78$). Alternate forms reliability for Forms A and B was 0.70.

During the administration, each scenario was read aloud to students and was followed by five questions. Students' responses to these questions were recorded in writing; however, to assure that nothing was missed in transcribing the responses, all interviews were audiotaped. The order of presentation of the four scenarios was randomized to avoid order effects.

Key informant interviews. Interviews with four students (two from each of the conditions) were used to gain insight into thought processes regarding conflict recognition and resolution. The interview also served as a member-checking device to substantiate the researcher's views regarding the interpretation of the data (Strauss & Corbin, 1990).

Students were selected based on their pretest scores on the CCST and their subsequent performance during their group's discussion. These students were selected because they were active participants who could recognize incidents of sociocognitive conflict and describe what was occurring during discussions.

Informants were interviewed on two occasions. On each occasion, one episode of sociocognitive conflict was identified from the key informants' discussion for use during the interviews. These students were taken into a separate viewing room to watch and comment on the episode of conflict from their group's discussion. During each of the two interviews, students watched the episode of conflict twice. In both interviews, the initial viewing was used as a stimulated recall in which students described what was occurring in that segment. Upon viewing the same segment a second time, informants were asked to stop the tape any time they saw someone who was having difficulty understanding something in the discussion or

any time they saw someone providing help. Informants were then asked to explain what was occurring in that conflict.

Teacher training. Prior to collecting baseline data, teachers participated in a two-hour training session that included an explanation of the study's theoretical background, guidelines for implementing treatments, and discussions of videotapes showing examples of peer-led and teacher-led discussions.

During a two-week baseline phase, data regarding students' reading comprehension as well as their performance on the CCST (Form A) were gathered and then used to match treatment groups. During this phase, teachers were provided with extensive on-line training and feedback as they implemented treatments with those students in their class who were not part of the target sample of average and below-average readers.

Following the baseline phase, treatments were randomly assigned to each group within each classroom. A nine-week intervention phase followed. Both the peer-led and teacher-led conditions followed the same three-day instructional sequence. However, stories were counterbalanced by treatment and by teacher:

Day 1: Stories were introduced and background knowledge activated according to script; purposes and predictions were recorded by students.

Day 2: Entire story was read silently; personal reactions, comments, and questions were recorded in journals by students.

Day 3: Story was discussed in a group according to treatment.

Videotapes of the weekly discussions served as a primary source of data. The researcher was present only to begin the recording equipment. Ongoing feedback and coaching was provided to teachers by the researcher in the form of written notes and informal discussion. In order to assure consistency across treatments, the researcher completed observational checklists that catalogued the characteristics of peer-led and teacher-led conditions. An independent rater observed 15% of the discussions and completed observational checklists as well. Interrater agreement was 1.00. Throughout the investigation, teachers adhered to the established criteria for the treatments 96% of the time. Following nine weeks of implementing the intervention, Form B of the Cognitive Conflict Scenario Task (CCST) was administered to each student.

Treatment Conditions

Peer-led condition. The peer-led condition was considered decentralized to the extent that interaction between and among students was encouraged as meaning was constructed. The goals of instruction were for the students to learn: (a) how to interact with others in a manner that fostered meaningful interpretation of literature, (b) how to support one another as they attempted to interpret literature and construct meaning, and (c) how to set agendas for discussing literature and for interacting with one another in a conversational manner.

In order to accomplish these goals, O'Flahavan's (1989) procedures for peer-led discussions were implemented. The teacher began each discussion by briefly reviewing rules for group discussion and interpretation.

The discussion rules were developed and revised weekly by the students as they became more facile in their interactions. These rules were recorded by the teacher on a chart entitled "Discussion Reminders." The following examples illustrate the types of interaction guidelines that students felt were important:

• Take turns talking • Stick to the topic • Be serious • Don't interrupt • Give comments, but be nice • Help others out • Encourage others

Students also generated their own ideas about how to enhance the richness of a discussion through interpretation. Interpretation was presented to students as a means of furthering a conversation that might have stalled. Students were asked to think about "Things to Talk About If the Discussion Stops," and the teacher again recorded their ideas on a chart. The following is a partial list of some of the types of group interpretation principles that students suggested over the course of time:

- Look in your journal for ideas
- Tell about your likes and dislikes
- Ask a question you had about the story
- If you didn't understand something, ask about it
- Comment on things others say
- Compare characters
- Compare story to things in your life
- Talk about and challenge the author's style of writing
- Talk about reasons why the author wrote the story
- Say whether you agree or disagree with someone's comment and tell why
- Check the story to back up your ideas

The weekly discussion began after the teacher reviewed the discussion rules and interpretation principles. Discussions were intended to last for 20 minutes. The teacher was included in the group as an informed participant providing "momentary scaffolding" (O'Flahavan, Stein, Wiencek, & Marks, 1992) for students. Providing momentary scaffolding enabled teachers to point out appropriate opportunities for using interpretive strategies and enabled teachers to function as coaches who encouraged and positively reinforced desirable behaviors during discussion.

The teacher conducted a debriefing at the end of each discussion. In the debriefing, students were directed to think about how they had interacted during the discussion and whether they had adhered to their guidelines. Students expressed their opinions openly and cited instances in which they had followed or deviated from their guidelines. New principles and guidelines were recorded as necessary, and old ones were often starred in order to emphasize those that needed attention.

Teacher-Led Condition. In the teacher-led group, teachers directed discussions by asking students comprehension questions. Teachers were encouraged to increase wait time so students could organize their thoughts and make their verbalizations as coherent and as extensive as possible (Rowe, 1974; Tobin, 1987). Students waited for the teacher to call on them before they responded to the teacher's questions, and students' responses were gener-

ally directed to the teacher rather than to classmates. Additionally, teachers were asked to encourage students to use the text they had read to support their answers and to verify their thoughts.

Scoring and Data Analysis

This investigation was designed to adhere to the standards for experimental studies as established by Campbell and Stanley (1966). The ensuing analyses, however, are derived from multiple paradigms and therefore offer a form of triangulation as described by Mathison (1988). The present investigation made use of a variety of analyses from multiple paradigms in order to draw theoretical and practical conclusions about the nature of sociocognitive conflict in different classroom cultures by triangulating the analyses (see also Eisenhart & Borko, 1993). The following three analyses were performed to triangulate the overall analysis: (a) qualitative analysis of the nature of episodes of sociocognitive conflict, (b) sociolinguistic analysis of the discourse associated with episodes of sociocognitive conflict, and (c) quantitative analysis of student ability to recognize and resolve episodes of sociocognitive conflict as measured by the CCST.

Qualitative Analysis of Sociocognitive Conflict

The constant comparative method (Glaser & Strauss, 1967; Strauss & Corbin, 1990) was used to analyze the data from peer-led and teacher-led discussions throughout the investigation. The first step of the analysis involved identifying episodes of sociocognitive conflict from the videotapes. Sociocognitive conflicts were defined as overt incongruities during discussions in which one's ideas about, one's understanding of, or one's interpretation of the text were challenged by oneself, other group members, or the teacher. Thus, episodes of sociocognitive conflict began with an exposing event that may have originated from: (a) a student's journal entry, (b) teacher comments and questions, or (c) student comments and questions. Episodes of conflict ended when the individual, the group, or the teacher either: (a) clearly resolved the conflict, leading to knowledge restructuring, (b) ignored the conflict, implying that knowledge structures remained in a state of flux — whether realized or not, or (c) shifted away from the conflict to a new topic, implying that knowledge structures were unaffected by the interaction.

The second step was to examine episodes to gain insight about sociocognitive conflict. Videotapes were reviewed in order to gain a holistic sense of the data. Examination of the episodes revealed that there were three distinct types of sociocognitive conflict in terms of where the responsibility for recognizing the conflict lay: Conflicts within Self, Conflicts with Others, and Conflicts with Text. These initial categorizations were tested on many occasions by reviewing the data and by consulting with key informants to verify the researcher's views and to make appropriate alterations.

For descriptive purposes, 36 of 108 videotaped discussions (12 from week 2, 12 from week 5, and 12 from week 8) were randomly selected and transcribed; 306 episodes of

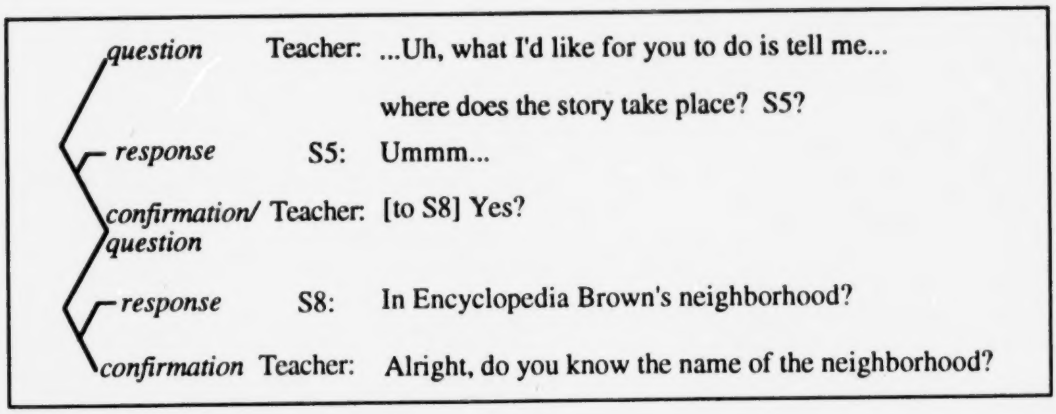
question
Teacher: ...Uh, what I'd like for you to do is tell me...
where does the story take place? S5?
response
S5: Ummm...
confirmation/ question
Teacher: [to S8] Yes?
response
S8: In Encyclopedia Brown's neighborhood?
confirmation
Teacher: Alright, do you know the name of the neighborhood?

Figure 2. An Example of Chaining

sociocognitive conflict were identified. Two raters inspected 10% of the transcripts of the videotaped discussions from the beginning to the end of each episode. Interrater agreement was 0.80. From these transcripts, episodes of sociocognitive conflict were classified as either: (a) Conflicts within Self, (b) Conflicts with Others, or (c) Conflicts with Text.

Sociolinguistic Analysis of Discourse

The sociolinguistic analysis built on the qualitative analysis by providing a more fine-grained analysis of the discourse associated with episodes of sociocognitive conflict. Data were examined with respect to five areas that provided insight into who dominated the discussion: (a) the proportion of all utterances spoken by students and by teachers in peer-led and teacher-led conditions, (b) the complexity of students' utterances in both conditions, (c) the number of alternate interpretations encountered during each episode, (d) the number of questions asked by students and teachers in each condition, and (e) the manner in which discourse was initiated and sustained in both conditions.

Proportion of utterances. In order to determine whether students or teachers were dominating discussions, each episode of sociocognitive conflict was parsed into utterances, which consisted of spoken clauses, phrases, or single words.

Response complexity. Response complexity offered insight into the degree of elaboration contained in student responses and was determined by the length of a response (Mishler, 1975). Responses of one or two words were classified as *low* in complexity. Sentence fragments and responses of one complete sentence were classified as *medium* complexity. Responses consisting of more than one complete sentence were considered *high* in complexity.

Number of alternate interpretations. Exposure to alternate interpretations may be a

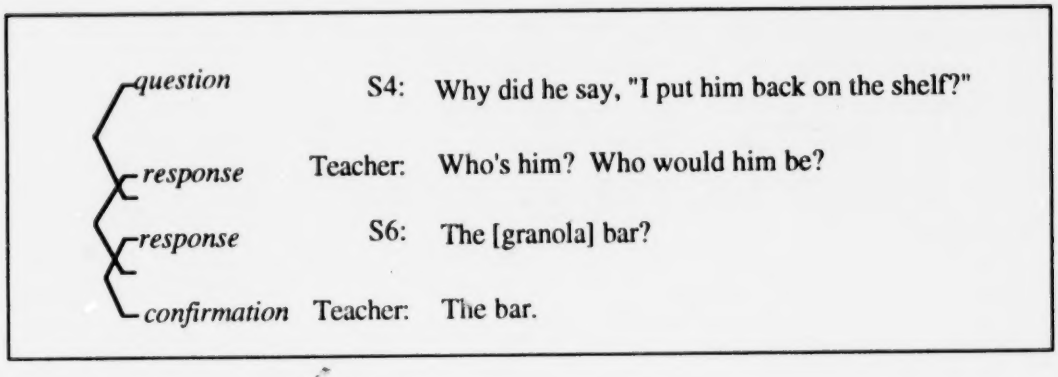

Figure 3. An Example of Arching

key factor in developing the ability to consider multiple interpretations. Therefore, the number of alternate interpretations in each episode was tallied. Alternate interpretations were defined as a point of view or interpretation that differed from one that had already been forwarded.

Number of questions asked. Questions offer insight into sociocognitive conflict in that the number of questions asked by students and teachers determines who is controlling the discussion. Thus, we counted the number of questions asked by students and teachers in order to assess the role of questioning during conflicts and its implications for power relations and interpretive authority in different classroom cultures.

How discourse was initiated and sustained by questions. The context within which questions are asked is also informative about power relations and interpretive authority because the patterns of response that follow a question determine how a conflict is resolved and who is responsible for its resolution. Episodes of sociocognitive conflict were broken down into dialogue units, which consist of at least three successive responses: (a) the question (or statement), (b) a response utterance from a second speaker, and (c) a confirmation utterance from another speaker that brings closure to the original topic. Mishler (1975) identified three primary ways in which questions serve to connect and extend dialogue: (a) chaining (when the confirmation utterance contains a question), (b) arching (when the response utterance contains a question), and (c) embedding (when there are two or more responses to a question).

The example of *chaining* shown in Figure 2 is taken from the pilot investigation. The teacher-led group was discussing "The Case of the Crowing Rooster" by Donald Sobol.

Mishler characterized adult/child interactions as consisting primarily of series of chained responses such as those shown in Figure 2. That is, adults tend to link discourse

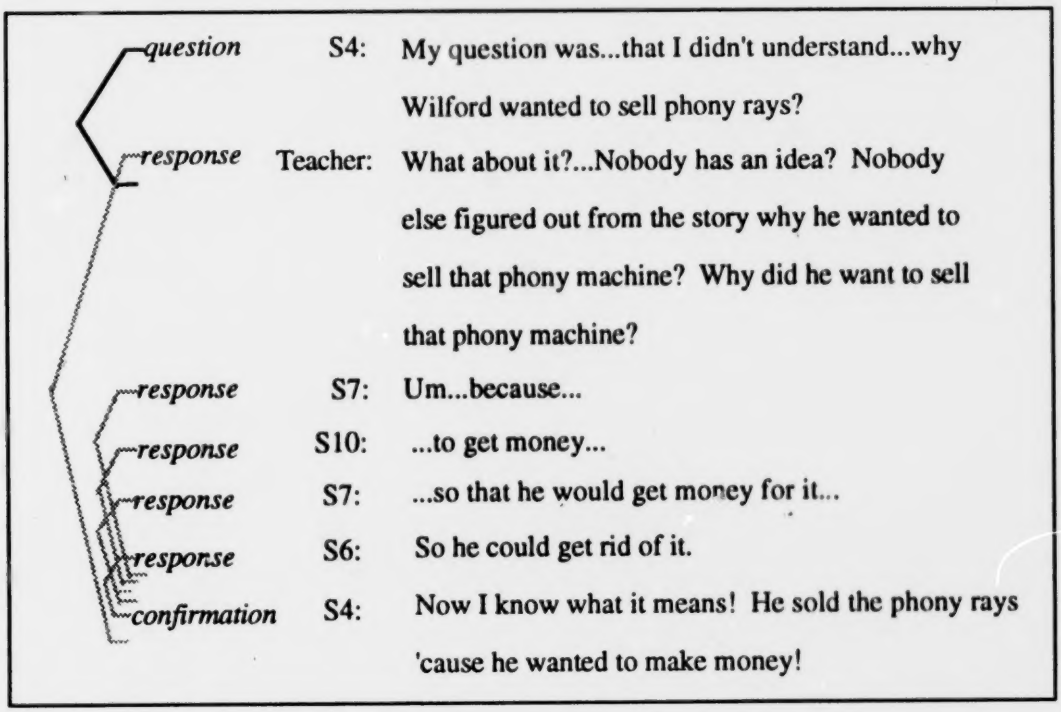
question
S4: My question was...that I didn't understand...why Wilford wanted to sell phony rays?
response
Teacher: What about it?...Nobody has an idea? Nobody else figured out from the story why he wanted to sell that phony machine? Why did he want to sell that phony machine?
response
S7: Um...because...
response
S10: ...to get money...
response
S7: ...so that he would get money for it...
response
S6: So he could get rid of it.
confirmation
S4: Now I know what it means! He sold the phony rays 'cause he wanted to make money!

Figure 4. An Example of Embedding

together through a successive chain of questions, responses, and confirmations in an attempt to maintain control of the interaction.

The example of *arching* shown in Figure 3 is taken from the peer-led condition in the pilot investigation. The group was discussing the story "Power Play" by Matt Christopher. Note that the teacher's response utterance to S4's question contains a question.

Mishler (1975) found that when children interact with one another, a less formal, more equitable pattern involving frequent arching and embedding occurs. Figure 4 shows an example of embedding also taken from the pilot investigation. In this case, the peer-led group was discussing "The Case of the Crowing Rooster." The episode begins with *arching* and is sustained through a series of *embedded* responses.

Mishler's categorization system could be applied to all of the discussions in this study. Each dialogue unit was coded as sustaining dialogue via chaining, arching, or embedding. Frequencies and proportions of the number of episodes that were initiated and sustained via chaining, arching, and embedding were calculated. Pearson product-moment correlations were also calculated to determine the relation-

ships among indicators of the quantity and quality of the discourse associated with episodes of sociocognitive conflict. Variables having statistically significant relations were then used as dependent variables in MANOVA procedures.

Quantitative Analysis of Ability to Recognize and Resolve Sociocognitive Conflict

Students' responses on the CCST were scored for the indication of three characteristics: (a) the ability to recognize the person experiencing the conflict in the episode, (b) the ability to recognize the conflicting event in the episode, and (c) the ability to resolve the episode of conflict. The scoring rubric was derived from responses from the pilot study. Responses on each of the three characteristics were assigned scores of 0, 1, or 2. A score of 2 indicated the highest level of ability (see Appendix B). A total possible score for each scenario was 6; the total possible score on each form of the CCST was 24.

One additional coder scored 10% of the data independently. Interrater agreement was 0.85.

RESULTS AND DISCUSSION

In order to provide a rich description of sociocognitive conflict in peer-led and teacher-led discussions and its effects, three analyses were undertaken: (a) the nature of the episodes of sociocognitive conflict were explored using constant-comparative methods, (b) the discourse that occurred during episodes of sociocognitive conflict were explored using sociolinguistic analysis, and (c) the effects of participation structure on ability to recognize and resolve episodes of sociocognitive conflict were analyzed statistically.

Nature of Episodes of Sociocognitive Conflict

In the 36 discussions analyzed in this study, there were 306 instances of sociocognitive conflict. Students in the peer-led condition were involved in more episodes of sociocognitive conflict (n = 166) than students in teacher-led conditions (n=140). However, an analysis of variance (ANOVA) revealed that this difference was not statistically significant ($F(1,85) = 1.92$, $p < .18$). Likewise, there were no significant differences among teachers with regard to the number of instances of sociocognitive conflict ($F(5,85) = 1.07$, $p < .40$).

Discussions in both peer-led and teacher-led conditions were intended to be 20 minutes in length, but since these were authentic classroom discussions, the time actually varied from classroom to classroom and between treatments. The average length of peer-led discussions ($M = 20.90$ min, $SD = 3.62$) was slightly larger than the average length of teacher-led discussions ($M = 19.54$ min, $SD = 2.72$). However, analysis of variance (ANOVA) procedures revealed that this difference was not statistically different across treatments ($F(1,85) = 1.78$, $p < .20$) or teachers ($F(5,85) = 1.62$, $p < .19$). Therefore, there is no evidence that the number of episodes or the length of discussion played a role in the analysis of sociocognitive conflict between treatment conditions.

As videotapes were examined during the course of the investigation, the category that first emerged was origin of conflict. However, it became apparent that the origin of the conflict contributed little to a description of the overall nature of sociocognitive conflicts. Upon closer inspection, it was determined that the observed conflicts differed according to locus of responsibility, that is, whether the individual experiencing the conflict was able to recognize his or her own conflict or whether another group member or the teacher had to take the responsibility. Additionally, conflicts were found to differ according to what the incongruent idea was related to, that is, whether an individual's incongruity conflicted with information revealed in the text or whether it was in conflict with another group member's ideas. Thus, three categories of sociocognitive conflicts emerged from the analysis: (a) Conflict within Self, (b) Conflict with Others, and (c) Conflict with Text.

Each of these categories was then subdivided to indicate (a) where the conflict came from (i.e., the origin of the conflict), (b) the content of the conflict (i.e., textually explicit/textually implicit), and (c) the type of resolution. This analysis yielded a detailed description of each example of sociocognitive conflict in peer-led and teacher-led discussions; however, only a brief description of the categories will be presented here (for a fuller description see Almasi, 1993). Table 1 displays the overall frequencies and proportions of the categories as well as the properties of the incidents of sociocognitive conflict between treatment conditions.

Conflict within Self. The category Conflict within Self represents a metacognitive realization that some aspect of the text or one's interpretation has caused confusion. The individual verbalizes this internal incongruity in the group, presumably to seek resolution. This process of recognizing one's own incongruities is fundamental to the process of creating conceptual change (Kuhn, 1989).

For peer-led groups, evidence of Conflict within Self emerged most often as a result of student comments and questions. These conflicts tended to be related to ideas implicit in the text and not to explicit statements; they were resolved primarily by sharing opinions and prior knowledge. In contrast, the profile of Conflicts within Self for teacher-led groups originated from the teachers' questions and comments, were related to explicit ideas in the text, and were resolved primarily by students telling the factual information needed to answer the question.

The profile for the peer-led groups warrants further discussion because it occurred in nearly 75% of all peer-led episodes of sociocognitive conflict (125 of 166 total conflicts). By definition, an episode of conflict categorized as Conflict within Self is indicative of a reflective student who is actively constructing meaning. The ability to reflect on one's interpretation of text and to determine what is relevant information when faced with incongruities is a highly complex process — a process that the peer-led group engaged in often throughout the investigation.

To illustrate a fairly typical peer-led Conflict within Self, an example from Teacher 2's peer-led discussion is examined more closely here. The group read "Orienteering Day" by Jim Razzi. The story relates the adventures of two characters, Jamie and Bobbie, who embark

Table 1. Frequencies (and Proportions) by Treatment of Categories and Properties of Discussion Involving Sociocognitive Conflict

	Treatment	
	Peer-led	**Teacher-led**
Categories		
Conflict within Self	125 (.75)	30 (.21)
Conflict with Others	20 (.12)	26 (.19)
Conflict with Text	21 (.13)	84 (.60)
Total	166	140
Properties		
Origin		
Journals	63 (.38)	14 (.10)
Teacher Comments/Ques.	1 (.01)	118 (.84)
Student Comments/Ques.	102 (.61)	8 (.06)
Content of Conflict		
Textually Explicit	61 (.37)	97 (.69)
Textually Implicit	105 (.63)	43 (.31)
Type of Resolution		
Telling Information	48 (.29)	68 (.47)
Sharing Opinions	55 (.33)	19 (.13)
Use of Text	29 (.18)	30 (.21)
Teacher	1 (.01)	26 (.18)
Discussion	9 (.05)	1 (.01)
Unresolved	23 (.14)	2 (.01)

on an orienteering race during summer camp. Although they face many obstacles throughout the race, their primary obstacle is Jamie, who is from the city and is unfamiliar with the use of the compass and a map to find his way through the woods. When Jamie decides that he is hungry and would like a hot dog, he realizes that hot dog stands are not as plentiful in the woods as they are in the city. Bobbie discovers a blueberry bush that satisfies Jamie's hunger and enables them to proceed with the race.

The group was contemplating a student's (S91) textually implicit question about the meaning of a character's remark "Who needs hot dogs? Blueberries are free." The conflict was categorized as a Conflict within Self because S91 verbalized her confusion during the course of the discussion. The conflict originated from students' comments and was resolved

through the shared opinions of S87 and S26. Note also how S91, who originally initiated the conflicting event, gains understanding based on S87's comment and assists in helping S44 understand:

EXPOSING EVENT

S91: *I wonder why they said, "'Who needs hot dogs,' he replied. 'Blueberries are free.'"*

S87: You see, he'd have to buy the hot dogs and, and...and you didn't have to buy the blueberries. You just found 'em, and then you wouldn't have to buy a hot dog, and then you wouldn't waste your money, and then you could like...keep like...different things that he found when he was there, so he didn't have to spend money um eating.

S44: But he'd have...but he'll have to buy the blueberries too.

S91: Uh uh [shakes head side-to-side]...but he found 'em for free.

S33: He found 'em when they were on the um thing in the woods. They just found 'em on some bushes...a blueberry bush.

In this peer-led excerpt, it is evident that S91 was able to verbalize her own incongruity and was actively seeking resolution from those around her who became an interpretive community that enabled her to revise her interpretation. The ability to recognize conflict within one's own interpretation may not only be essential in creating conceptual change, but it may also be essential to the internalization process that leads to engaged reading. The fact that the culture of the peer-led discussion permitted students to express their own views because they set their own agenda, highlights that peer-led discussion may have an impact not only on what is discussed, but also on whether that discussion leads to an awareness that results in cognitive change.

Conflict with Others. The category Conflict with Others represents a person's realization that he or she holds ideas that are at odds with those of other members of the discussion group. Before the discussion, the individual may not have had an internal conflict or may have been unaware that an alternate interpretation was possible. Therefore, the conflict with others arises as group members share their interpretations.

Conflicts with Others were infrequent in both peer-led (n = 20, 12% of all conflicts) and teacher-led (n = 26; 19% of all conflicts) conditions. Typical peer-led Conflicts with Others contained a textually implicit conflict that originated from students' comments and questions and was resolved by students sharing their opinions and ideas. This profile is the same one that was operating in peer-led Conflicts within Self. In typical teacher-led Conflicts with Others, the conflict was textually implicit and originated from teacher comments and questions. The predominant type of resolution was via student sharing of opinions and ideas. This profile is very different from the one occurring during teacher-led Conflicts within Self in which conflicts tend to be textually explicit and were resolved primarily by students providing factual information to answer the question.

These conclusions are supported by an example taken from Week 5, as students from

Teacher 3's peer-led group were discussing "The Mystery of the Rolltop Desk." The group was considering the similarities between Encyclopedia Brown mysteries and "The Mystery of the Rolltop Desk." The episode originated from a student's textually implicit question, "Do you think the story was anything similar to Encyclopedia Brown?" This question spawned a number of conflicts and a variety of responses that eventually led the students to share their own ideas about what they would do to improve the story.

EXPOSING EVENT

S42: *Do you think the story was like, anything, like, sim... similar to Encyclopedia Brown?*

S97: I think it's similar. I think Encyclopedia Brown has more of a mystery.

S75: ... and more better cases and mysteries than this one does. All this one has got is finding a stolen document.

S42: Before anyone else speaks, let her have a turn [points to S21]

S21: Well, why was it like, how come this story wasn't like more of a mystery?

S31: I don't know.

S97: I don't know.

S75: Seems like a regular old story.

S27: Well, then we gotta talk together and try and find it out.

S31: I don't know why [it wasn't more of a mystery]. Why? Good one S27.

T3: It was a good suggestion, now why don't you act on it?

S31: Why's it so boring?

S75: It's not a mystery.

S27: I don't think it was boring.

S42: Since everybody wanted more action in the story, why, what would you add in it? What kind of action?

S31: I would add...

S42: Shh! One at a time.

S75: I'd make it a different kind of mystery. A better...

S42: Like what? The mystery of the missing pancake batter? The mystery of the...

S97: I would ... I would...I would add um I would add ... I would add a little bit more mysterious. Like *somebody* got stolen or *something* got stolen like Jenny [the main character] was up and ... the two guys that tried to steal the thing captured her while they were um ransack ... ransacking the um house.

In this excerpt, several students (S31, S75, and S27) have conflicting notions, but S27's comment, "Well, then we gotta talk together to try and find it out" is testimony to the group's dedication to resolving the conflict. The students were determined to find out what the story lacked that Encyclopedia Brown mysteries have. This conflict led them to share many ideas about improving the story. Ultimately, they agreed that the story needed more action. In a Vygotskian sense, discussions such as this one show how students might become enculturated to resolve incongruities by sifting through various opinions that could lead them to alter their interpretations, and ultimately lead them to new knowledge.

Conflict with Text. Conflicts with Text arose during the discussions when students' responses conflicted with the text. Such responses were often followed by a comment from the teacher or a peer who pointed out that

a students' idea was incongruent with the facts stated in the text. Given the nature of meaningful dialogue, it is assumed that in forwarding the response, the individual thought his or her response was correct (Grice, 1975). Thus, it is also assumed that the individual making a comment that conflicts with the text has no metacognitive realization of the incongruity when the comment is made. Realization of the incongruity occurs when either the teacher or another group member points out the lack of correspondence between the student's response and the text. The difference, therefore, between Conflicts with Text and Conflicts within Self is that in Conflicts with Text, the students experience the conflict because they are told that there is an incongruity, whereas in conflicts categorized as Conflict within Self they recognize the conflict themselves.

Conflicts with Text were infrequent in the peer-led conditions (n = 21, 13% of all conflicts). However, such incongruities accounted for 60% of the conflicts in teacher-led conditions (n = 80). The typical profile of a peer-led Conflict with Text is one that originates from students' comments and questions, is textually explicit in nature, and is resolved by either referring to the text or by telling information. In peer-led discussions, Conflicts with Text often emerged while students were retelling or commenting on an event from the story. During the retelling, responses contained information that was incongruent with the text. Typically, another student pointed out the incongruity and thus resolved the conflict.

In contrast with peer-led discussions, teacher-led Conflicts with Text tended to originate from teachers' comments and questions and tended to be resolved by telling information. Like peer-led episodes, teacher-led episodes tended to be textually explicit as well. In teacher-led discussions, Conflicts with Text occurred in one of two ways. In the first instance, the teacher asked a question, and the response to that question contained an incongruity with the text. At that point, the teacher usually informed the student that his or her answer was incorrect and requested that another student provide the appropriate answer. The following example from Week 8 of Teacher 2's teacher-led discussion of "The Case of the Crowing Rooster" illustrates this point:

EXPOSING EVENT

T2: *Who was pretending to make the box work?*

CONFLICT WITH TEXT

S28: Bill

EVALUATION OF RESPONSE

T2: It wasn't Bill. It was . . . [nods to S12]
S12: Wilford.
T2: Wilford.

In the second instance, the teacher asked a question, called on a student to respond to the question, and the student's response often indicated his or her inability to answer. Responses in these instances often were in the form of "Ummm" or "Uhhh." This hesitancy informed the teacher and other students that the student either did not know the answer or was not paying attention. These hypotheses were confirmed during the key informant interviews.

Following such responses, the teacher often called on another student who could re-

solve the conflict by providing the appropriate factual information. The following excerpt from Week 8 of Teacher 4's teacher-led group illustrates this point. During the discussion of "The Case of the Crowing Rooster," the teacher asked a series of questions aimed at establishing the facts in the story. In this episode, she was trying to establish which character was involved in the moneymaking scheme with the antagonist, Wilford Wiggins:

EXPOSING EVENT FROM TEACHER QUESTIONS

T4: *When they were all gathered there at the dump um and Wilford was there, who did Wilford have with him? Who was with him, S38?*

CONFLICT BY NONRESPONSE

S38: Um . . .

T4: Who'd he have with him, S12?

RESOLUTION BY TELLING

S12: He had Bill Canfield.

T4: Right.

As illustrated in these examples from teacher-led discussions, neither the individual experiencing the conflict nor the other students were responsible for recognizing an incongruity with a text. Instead, the teacher recognized incongruities. Resolutions were sought by asking other students (in this case S12) who knew the answer. Thus, the individuals who experienced the incongruity were not held responsible for recognizing the incongruity nor were they held responsible for resolving it.

Interestingly, peer-led groups tended to resolve Conflicts with Text by referring to the text (38%) whereas teacher-led groups tended to resolve Conflicts with Text by telling information (55%). Likewise, more of the teacher-led discussions relied on the teacher to resolve the conflict (14%) than did the peer-led discussions (5%). Thus, nearly 70% of the teacher-led conflicts with text were resolved by persons other than the one who experienced the conflict. This finding illustrates the restricted role of the teacher in the peer-led conditions, and it underscores the more prominent role of the teacher typical of the teacher-led condition.

The emphasis in the teacher-led discussions, therefore, centered on revealing "who knew what" or rather "who didn't know what." Teacher-led discussions seemed to be used more as an assessment tool rather than as a mechanism for constructing meaning collaboratively. The primary emphasis was on identifying *who* had incongruities as opposed to *what* the incongruities were.

Theoretical Implications

The differing profiles of each group's discussion lead to different theoretical implications. The peer-led condition, in which students engaged in substantially more conflicts with self, included episodes in which students recognized and verbalized their own incongruities and actively sought resolution. These incongruities were personally relevant, and students were actively engaged in constructing meaning with respect to these issues.

As evidenced by the overwhelming degree to which discussions derived from teachers' comments and questions, the teacher-led condition, on the other hand, was characterized by discussions in which the teacher set the agenda.

This agenda was reflected in the dominance of textually explicit questions. As students responded to these questions, individual incongruities were revealed. In these discussions, the teacher served as the monitor of student performance. Therefore, incongruities were recognized and verbalized by the teacher, not by the students. Resolutions were secured by soliciting "correct" answers from students who already knew the answer. Therefore, the student who experienced the incongruity did not have an active role in recognizing the conflict or in resolving it. This implies that the student was disengaged from the episode.

The evidence presented here has theoretical implications relevant to Kuhn's (1989) theory of conceptual change. Kuhn argued that recognizing that one's ideas are incongruent is a critical element in the process of conceptual change. Thus, students in the peer-led condition, having engaged in substantially more conflicts within self than students in teacher-led conditions, would be better able to recognize incongruent events. Kuhn's theory, as well as Vygotsky's, highlights the importance of students' verbalizations in changing conceptions as well as in internalizing the process of conceptual change. Thus, the evidence presented here is relevant to both theories.

Nature of the Discourse Associated with Episodes of Sociocognitive Conflict

In order to gain insight into the quantity and quality of students' verbal interactions in peer-led and teacher-led conditions, the discourse associated with sociocognitive conflict was examined both sociolinguistically and statistically.

Sociolinguistic Analysis

Five factors were examined with respect to each treatment condition: (a) the number of utterances spoken by students and teachers, (b) the complexity of students' responses, (c) the number of alternate interpretations forwarded during each episode, (d) the number of questions asked by students and teacher, and (e) the manner in which discourse was initiated and sustained by questions. Table 2 displays the frequencies and proportions of students' and teachers' discourse for each of these five factors in peer-led and teacher-led discussions.

Proportion of utterances spoken by students and teachers. Predictably, student dialogue accounted for 94% of all dialogue in the peer-led condition whereas it accounted for 38% of all dialogue in the teacher-led condition. Students in the peer-led condition made comments nearly twice as often as students in the teacher-led condition.

Complexity of students' responses. Although students' responses in both peer- and teacher-led conditions consisted primarily of responses that were of medium complexity, interesting distinctions emerged when the number of responses classified as high or low complexity were compared.

Twenty-six percent of student responses in peer-led groups were of *high* complexity. Twenty-eight percent of student responses in teacher-led groups, on the other hand, were of *low* complexity. Therefore, 88% of peer-led responses may be characterized as being either *medium* or *high* in complexity. In contrast, 85% of students' responses in the teacher-led condition may be characterized as *medium* or *low* in complexity. Even when students' re-

Table 2. Frequencies and (Proportions) of Discourse Factors by Treatment

	Treatment			
	Peer-led		Teacher-led	
Number of Utterances				
Students	2966	(.94)	1438	(.38)
Teachers	197	(.06)	2352	(.62)
Complexity of Student Responses				
Low	171	(.12)	246	(.28)
Medium	916	(.62)	510	(.57)
High	387	(.26)	134	(.15)
Number of Questions Asked				
Students	368	(.84)	61	(.07)
Teachers	68	(.16)	821	(.93)
Way Discourse Was Initiated/Sustained				
Chaining	211	(.44)	700	(.85)
Arching	79	(.16)	59	(.07)
Embedding	194	(.40)	66	(.08)

sponses in teacher-led conditions were coded as high in complexity, those responses were often a rereading of a portion of text. Responses of high complexity in the peer-led group, however, consisted primarily of students' ideas.

Number of alternate interpretations of text fostered by discussion. Peer-led groups had a greater number of alternate interpretations than teacher-led groups. The introduction of each new interpretation in a discussion was counted as an alternate interpretation. Peer-led groups had a total of 285 alternate interpretations (M = 15.83 per discussion) and teacher-led groups had a total of 213 alternate interpretations (M = 11.83 per discussion).

As the investigation proceeded, peer-led groups had an increasing number of alternate interpretations per episode of sociocognitive conflict (e.g., 1.36 in Week 2, 1.79 in Week 5, and 2.08 in Week 8) whereas teacher-led groups had virtually the same number throughout the investigation (e.g., 1.43 in Week 2, 1.52 in Week 5, and 1.54 in Week 8). This disparity may reflect differences in characteris-

tics of the discussion in the respective groups. Discussion in teacher-led groups tended to be more textually explicit, and conflicts were resolved by telling information. The responses to conflict tended to be a single, correct answer that complied with the text.

Peer-led groups, on the other hand, were engaged in more textually implicit discussion that provided greater opportunity for multiple interpretations to be expressed in the form of "shared opinions." Hence, students in peer-led conditions tended to engage in discourse that contained more alternate interpretations. The structure of the teacher-led groups being one that was dominated by the teacher who encouraged a single, correct interpretation that can be found in the text may also have reduced the number of alternate interpretations. In contrast, the decentralized structure of the peer-led group seems to have encouraged students to construct meaning collaboratively.

Number of questions asked by students and teachers. Questions are an integral part of sociocognitive conflict in that they are a mechanism for revealing conflicts. In peer-led groups students asked most of the questions (84%) compared to teacher-led groups where teachers asked most of the questions (93%). This finding is not surprising given that students were primarily responsible for the discussion agenda in peer-led groups whereas teachers established the discussion agenda in teacher-led groups.

The difference between treatment conditions, apart from the source of the questions, was the number of questions asked. In the teacher-led condition, 821 questions were asked by teachers (M = 5.86 questions per episode of conflict). In contrast, 368 questions were asked by students in the peer-led condition (M = 2.21 questions per episode of conflict). Thus, peer-led discussions consisted of fewer questions, but as indicated previously, that group had more dialogue aimed at resolving those questions. Discussions in teacher-led conditions were characterized by more questions asked by teachers; yet, student responses to those questions consisted of fewer and less complex utterances.

Contextual analysis of discourse related to questions. Frequency counts of the number of questions asked tell little about the context within which the questions were asked (Carlsen, 1991). Exploring how dialogue was initiated and sustained by questions, however, provides an opportunity to see more clearly how meaning was constructed. Likewise, such an analysis offers insight about power and interpretive authority. The analysis of the videotape data revealed that teacher-led groups initiated and sustained dialogue primarily via chaining (85%), with little arching and embedding occurring. Peer-led groups used combinations of chaining (44%) and embedding (40%) to initiate and sustain dialogue.

The differences between the ways in which peer-led and teacher-led discussions were sustained can be seen in the following excerpts from discussions of "Soup's New Shoes" that occurred during Week 8. In the story, Soup returns home from the city with a pair of new shoes and proudly displays them to his friend Rob. The next day Rob's jealousy over the fact that Soup always seems to get new things overcomes him while they are racing to school. Rob, wearing his old tattered shoes, trips and falls and ruins his shoes. Rob's anger and frustration emerge, and Soup offers to swap his

new shoes for Rob's old pair. In Figure 5, Teacher 2's peer-led group is contemplating "Why Soup traded shoes with Rob." Note that the Conflict within Self originated from S44's journal and was textually implicit in nature.

In this peer-led discussion, embedding, which is a feature of natural conversation and rich dialogue, was used to sustain the discussion (Mishler, 1975). In contrast, teacher-led conditions tended to rely primarily on chaining to initiate and sustain discourse during episodes of sociocognitive conflict. Figure 6 shows a portion of a longer discussion from Teacher 5's (T5) teacher-led group. The group also read "Soup's New Shoes" and was contemplating the same issue as the peer-led group shown in Figure 5. Note that the conflict emerged as a result of the teacher's question, "Why did he let his friend Rob wear 'em [the shoes]?" Furthermore, it is representative of teacher-led discussion because it involved a Conflict with Others that is textually implicit.

The teacher is obviously disappointed with S40's idea that Rob was greedy and attempts to guide the student's analysis of Rob's character traits. This particular episode continued with a series of 26 consecutive chained dialogue units that contained 32 teacher questions. Eventually this group's resolution was that Rob was not greedy — he was feeling nervous and angry. In other words, the teacher rejected S40's interpretation and by asking a series of chained questions, shaped the group's interpretation of Rob's character traits.

These results confirm Mishler's (1978) finding that the context in which questions occur is important, for questions have implications in terms of power, interpretive authority, and culture. The greater amount of diversity of discourse by students in the peer-led condition suggests that power was distributed among the students and that the interpretive authority was the group's collective effort to construct meaning. The teacher-led condition, characterized by much less student talk and much greater focus on teacher questions, suggests a culture in which power and interpretive authority rested with the teacher.

Statistical Analysis

Pearson product-moment correlations among the variables describing the discourse corroborated the frequency data (see Table 3). The results indicated positive, statistically significant relations between the number of student utterances, which were more prominent in the peer-led condition, and the number of (a) responses that were of medium and high complexity, (b) student questioning, (c) alternate interpretations, (d) discourse that was sustained by arching, and (e) discourse that was sustained by embedding. Also reaching statistical significance was the positive relation between the number of teacher utterances, which was more prominent in the teacher-led condition, and (a) the number of instances of chaining and (b) the number of responses classified as low complexity.

These intercorrelations were used to select variables in a multivariate analysis of variance (MANOVA). The MANOVA was used to evaluate the hypothesis that treatment groups differed with respect to indicators of verbalization. Two separate MANOVA procedures were performed. In the first, the following seven indicators were selected as dependent variables based upon their significant intercor-

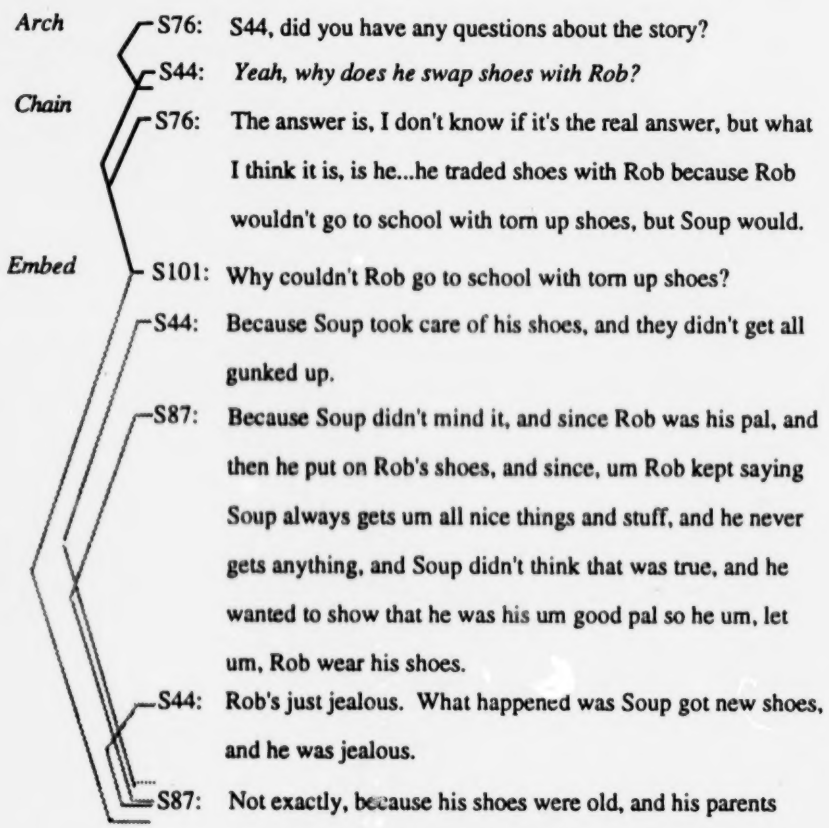
Arch
Chain
Embed
S76: S44, did you have any questions about the story?
S44: *Yeah, why does he swap shoes with Rob?*
S76: The answer is, I don't know if it's the real answer, but what I think it is, is he...he traded shoes with Rob because Rob wouldn't go to school with torn up shoes, but Soup would.
S101: Why couldn't Rob go to school with torn up shoes?
S44: Because Soup took care of his shoes, and they didn't get all gunked up.
S87: Because Soup didn't mind it, and since Rob was his pal, and then he put on Rob's shoes, and since, um Rob kept saying Soup always gets um all nice things and stuff, and he never gets anything, and Soup didn't think that was true, and he wanted to show that he was his um good pal so he um, let um, Rob wear his shoes.
S44: Rob's just jealous. What happened was Soup got new shoes, and he was jealous.
S87: Not exactly, because his shoes were old, and his parents wouldn't get him a new pair, and they were really old and then when he tripped on that thing they were ripped, and just because Soup had outgrown his shoes, his parents had a chance [to buy him new shoes] because they went to the big city and got a new pair of shoes. Then Rob, maybe his parents didn't have enough money to get him a new pair of shoes.

Figure 5. Excerpt from Peer-led Group Discussion of "Soup's New Shoes"

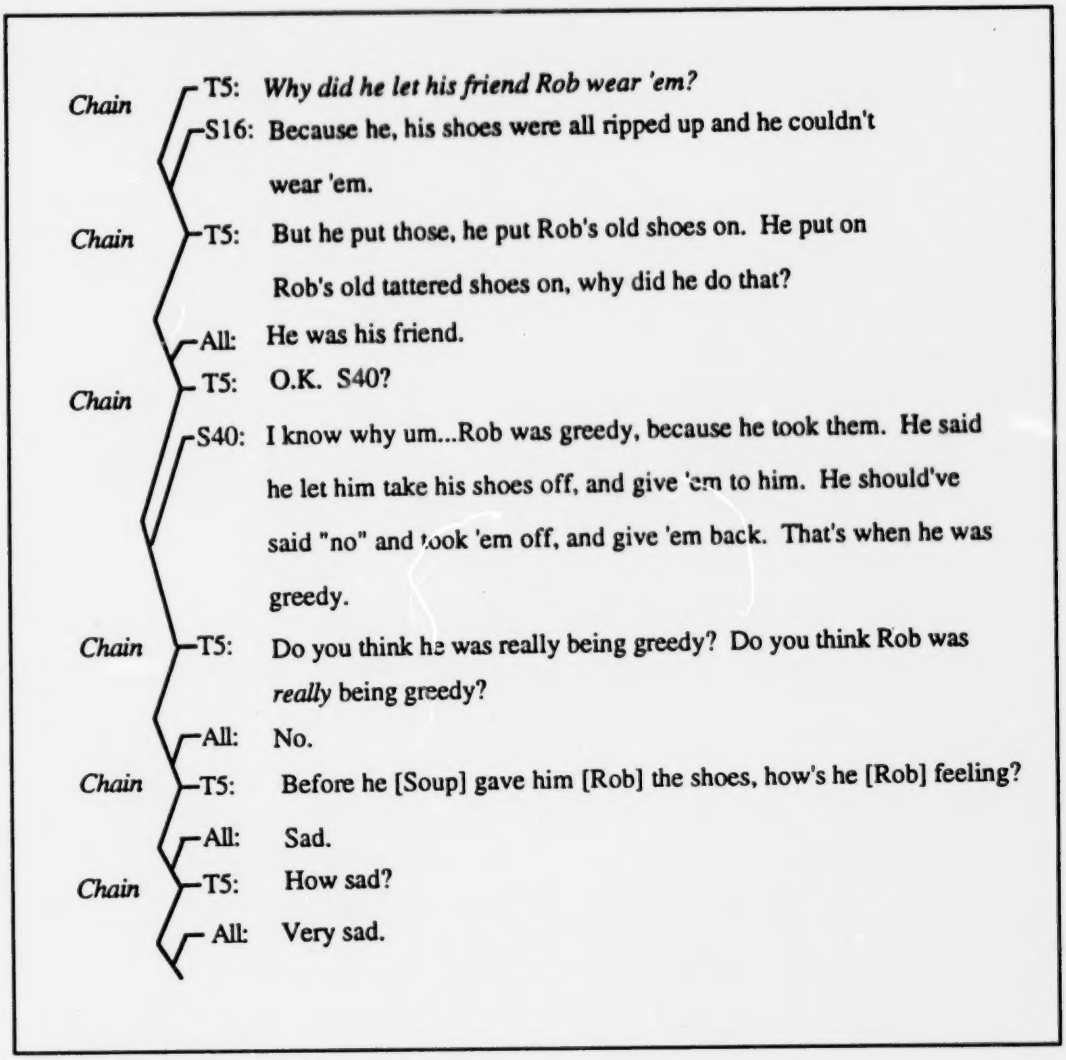
Chain
T5: Why did he let his friend Rob wear 'em?
S16: Because he, his shoes were all ripped up and he couldn't wear 'em.
Chain
T5: But he put those, he put Rob's old shoes on. He put on Rob's old tattered shoes on, why did he do that?
All: He was his friend.
Chain
T5: O.K. S40?
S40: I know why um...Rob was greedy, because he took them. He said he let him take his shoes off, and give 'em to him. He should've said "no" and took 'em off, and give 'em back. That's when he was greedy.
Chain
T5: Do you think he was really being greedy? Do you think Rob was really being greedy?
All: No.
Chain
T5: Before he [Soup] gave him [Rob] the shoes, how's he [Rob] feeling?
All: Sad.
Chain
T5: How sad?
All: Very sad.

Figure 6. Excerpt from Teacher-led Discussion of "Soup's New Shoes"

Table 3. Intercorrelations Between Discourse Factors in Discussions Involving Sociocognitive Conflict

	Alternate Interp.	Student Utterances	Teacher Utterances	Low Response Complexity	Medium Response Complexity	High Response Complexity	Chaining	Arching	Embedding	Student Questions	Teacher Questions
Alternate Interp.	1.00	.60**	-.06	.31	.70**	.48*	.09	.29	.59**	.50**	-.07
Student Utterances		1.00	-.39*	.06	.78**	.89**	-.19	.41*	.77**	.75**	-.39*
Teacher Utterances			1.00	.62**	-.17	-.51**	.92**	.04	-.41*	-.65**	.94**
Low Complexity				1.00	.30	-.21	.72**	.13	.04	-.14	.61**
Medium Complexity					1.00	.58**	.02	.47*	.88**	.77**	-.16
High Complexity						1.00	-.34	.30	.70**	.69**	-.50**
Chaining							1.00	.09	-.29	-.49*	.93**
Arching								1.00	.45*	.48*	-.01
Embedding									1.00	.87**	-.43*
Student Questions										1.00	-.67**
Teacher Questions											1.00

*$p < .01$ **$p < .001$

relations: number of student utterances, high response complexity, medium complexity, number of embedded dialogue units, number of arched dialogue units, number of alternate interpretations, and number of questions asked by students.

A 2 × 6 (Treatment × Teacher) MANOVA yielded significant main effects for treatment condition, Wilks' λ ($F(1,24)$ = 20.03, $p < .0001$). No significant main effects were found for teacher or for the interaction effect. Univariate analyses for treatment condition revealed significant differences between treatment conditions on each selected indicator of student verbalization. Significant main effects were found for the number of student utterances ($F(1,24)$ = 27.06, $p < .0001$); the number of responses classified as high complexity ($F(1,24)$ = 38.42, $p < .0001$); the number of responses classified as medium complexity ($F(1,24)$ = 15.73, $p < .001$); the number of embedded dialogue units ($F(1,24)$ = 30.57, $p < .0001$); the number of alternate interpretations ($F(1,24)$ = 5.19, $p < .03$); and the number of student questions ($F(1,24)$ = 91.59, $p < .0001$). Together, these results suggest that the discourse in the peer-led condition consisted of more student verbalization that was significantly more complex and more natural than student discourse in the teacher-led condition.

A second 2 × 6 (Treatment × Teacher) MANOVA was also performed. Analysis again yielded significant main effects for treatment, Wilks' λ ($F(1,24)$ = 33.67, $p < .0001$). Significant main effects were also found with respect to teacher, Wilks' λ ($F(5,24)$ = 1.77, $p < .04$). No significant effects were found with respect to the interaction effect, Wilks' λ ($F(5,24)$ = 1.23, $p < .247$). Univariate analyses for treatment effects revealed significant differences between treatments on each selected variable: the number of teacher utterances ($F(1,24)$ = 87.33, $p < .0001$); the number of responses classified as low complexity ($F(1,24)$ = 5.73, $p < .025$); the number of chained dialogue units ($F(1,24)$ = 42.20, $p < .0001$); and the number of teacher questions ($F(1,24)$ = 100.13, $p < .0001$). Together, these results suggest that the teacher-led condition consisted of more teacher talk and teacher questions. These questions were sustained by more chained dialogue units than in peer-led discussions, and more students' responses low in complexity.

Univariate analyses for teacher effects revealed significant differences by teacher in the number of low responses made by students ($F(5,24)$ = 4.15, $p < .01$). Teacher effects were not significant for any other indicator of discourse. These results suggest that teachers' styles elicited different numbers of student responses that were low in complexity.

Performance on the Cognitive Conflict Scenario Task

Table 4 displays the means and standard deviations between peer-led and teacher-led conditions on the CCST. After inspecting the posttest means, we decided to aggregate the scores indicating the ability to recognize conflicting events and the score indicating the ability to resolve conflicts and to contrast these aggregate scores with scores on the ability to recognize the person experiencing the conflict.

Table 4. Means and (Standard Deviations of Pretest and Posttest Scores by Treatment Conditions

	Treatment	
	Peer-led	**Teacher-led**
Pretest	(n = 49)	(n = 48)
Recognition of Person†	3.84 (1.98)	3.83 (1.63)
Recognition of Event†	5.06 (1.77)	4.94 (1.93)
Ability to Resolve†	4.86 (1.61)	4.71 (1.68)
Total‡	**13.76 (2.86)**	**13.48 (3.73)**
Posttest	(n = 49)	(n = 49)
Recognition of Person†	3.61 (1.74)	3.85 (1.82)
Recognition of Event†	6.35 (1.41)	5.79 (1.81)
Ability to Resolve†	5.31 (1.77)	4.73 (1.71)
Total‡	**15.29 (3.45)**	**14.40 4.02**

†Total possible = 8.00. ‡Total possible = 24.00.

The numerical difference between scores on the former aggregated variable and scores on the latter variable provided insight into possible interactions between treatment conditions. This difference is hereafter referred to as "comparison" and was used as a within-subjects factor in the analysis.

A 2 × 6 (Treatment × Teacher) analysis of variance (ANOVA) was performed for each of the component scores of the CCST. Between-subjects factors consisted of Treatment, Teacher, and Treatment × Teacher interaction. Within-subjects factors consisted of Comparison, Treatment × Comparison interaction, Teacher × Comparison interaction, and Treatment × Teacher × Comparison interaction. Significant main effects were found for teacher ($F(5, 85) = 2.38$, $p < .05$). Significant interactions were found for the Treatment × Comparison interaction ($F(1,85) = 4.93$, $p < .03$) and for the Teacher × Comparison interaction ($F(5,85) = 4.38$, $p < .001$).

Table 5 reveals that the mean scores on ability to recognize and resolve conflicts were lowest for both conditions in Teacher 6's class. The fact that 24% of all student discourse in Teacher 6's discussions was composed of responses that were significantly lower in

Table 5. Means and (Standard Deviations) by Teacher and Treatment on Ability to Recognize and Resolve Conflict and Ability to Recognize Person Experiencing Conflict

Teacher	Recognize and Resolve Conflict†	Recognize Person Experiencing Conflict‡
T1 Total (n = 18)	**9.83 (3.70)**	**3.83 (1.82)**
Peer-led (n = 9)	10.67 (3.50)	4.11 (2.21)
Teacher-led (n = 9)	9.00 (3.91)	3.56 (1.42)
T2 Total (n = 15)	**11.47 (2.10)**	**4.13 (1.55)**
Peer-led (n = 8)	11.38 (1.19)	3.63 (1.19)
Teacher-led (n = 7)	11.57 (2.94)	4.71 (1.80)
T3 Total (n = 20)	**12.05 2.50**	**3.90 (1.80)**
Peer-led (n = 10)	12.90 2.81	4.10 (1.45)
Teacher-led (n = 10)	11.20 · 1.93	3.70 (2.16)
T4 Total (n = 16)	**11.88 (2.33)**	**3.75 (1.53)**
Peer-led (n = 8)	12.25 (1.98)	3.63 (1.85)
Teacher-led (n = 8)	11.50 (2.73)	3.88 (1.25)
T5 Total (n = 11)	**12.82 (1.83)**	**3.00 (2.00)**
Peer-led (n = 6)	13.00 (2.37)	2.67 (1.75)
Teacher-led (n = 5)	12.60 (1.14)	3.40 (2.41)
T6 Total (n = 17)	**9.12 (2.78)**	**3.40 (2.04)**
Peer-led (n = 8)	9.87 (2.59)	3.13 (1.96)
Teacher-led (n = 9)	8.44 (2.92)	3.89 (2.15)

† Total possible score = 16.00. ‡ Total possible score = 8.00

complexity than the discourse in other teachers' classes may explain why students' scores in both conditions were significantly lower than scores in other teachers' groups on the ability to recognize and resolve conflict. This fact may also explain the significant Teacher × Comparison interaction as well.

The significant Treatment × Comparison interaction suggests that differences between peer-led and teacher-led conditions vary depending on students' ability to recognize and resolve conflicts and their ability to recognize the person experiencing conflict. Students in the peer-led condition were able to recognize

and resolve conflicts significantly better than students in the teacher-led conditions; however, students in teacher-led conditions were more adept at identifying the person experiencing conflict.

The present results suggest that when students engage in peer-led discussions of literature in which they are permitted to set the agenda for discussion, they are able to express themselves more freely. As a result, the agenda frequently focuses on identifying and resolving Conflicts within Self. Thus, students take responsibility for identifying and seeking resolution of their own conflicts. On a transfer task, they seem gradually to internalize the cognitive structures that made them more adept at recognizing and resolving conflicts.

CONCLUSIONS

The three major findings from this study are that: (a) different types of sociocognitive conflict can be identified during literary discussions, (b) peer-led and teacher-led discussions have distinctly different discourse related to sociocognitive conflict, and (c) internalization of the underlying cognitive processes involved in sociocognitive conflict is affected by whether the discussion is peer-led or teacher-led.

The first major finding is that three types of sociocognitive conflicts were evident in discussions involving sociocognitive conflict: Conflict within Self, Conflict with Others, and Conflict with Text. Sociocognitive conflict in peer-led discussions consisted primarily of textually implicit Conflicts within Self that originated from students' comments and questions while they discussed the story. These conflicts were most often resolved by sharing opinions and background knowledge with group members in order to construct new interpretations. The fact that the peer-led condition also tended to have more instances of unresolved conflicts supports earlier research suggesting that unresolved conflict is a frequent and expected feature of conversational dialogue (Goodwin, 1982; Vuchinich, 1990).

The greater number of Conflicts within Self among students in the peer-led condition suggests that they were able to recognize, verbalize, and attend to incongruities in their own thinking. In a Vygotskian sense, participation in discussion engaged students in the peer-led condition in a social activity in which they verbalized internal conflicts. Through their involvement with an interpretive community they were able to experience conceptual change through the resolution of those conflicts.

Sociocognitive conflict in the teacher-led condition consisted primarily of Conflicts with Text. Discussion was dominated by the teacher and focused often on textually explicit questions presented by the teacher. This type of conflict surfaced in these discussions when students responded incorrectly to the teacher's questions. Teachers then assessed students' responses and alerted them to inconsistencies with text. The teacher assumed the responsibility for recognizing incongruities, not the students. Thus, students in the teacher-led condition did not often engage in discussion that would enable them to internalize the ability to recognize and resolve conflicts within self.

The second major finding related to the type of discourse in the different types of discussion. The discourse in the peer-led

conditions was more elaborate and more complex than discourse in the teacher-led conditions. Likewise, peer-led discussions contained more student utterances of medium and high complexity. Students in the peer-led discussions also asked more questions than students in the teacher-led discussions, and the dialogue sustained by these questions tended to contain more arching and embedding — both indicators of more natural and more complex conversation (Mishler, 1975). Student discourse in peer-led discussions also contained more alternate interpretations than did teacher-led discussions. This finding is consistent with Vygotsky (1978) who theorized that verbalizing one's thoughts in an interpretive community is a key factor enabling a psychological process such as the recognition and resolution of incongruities to become internal speech.

Teacher-led discussions were characterized by more teacher utterances and teacher questions. The dialogue that sustained discussion following these questions was sustained mostly by chaining, a finding that supports those of Alpert (1987), Cazden (1986), and Mehan (1979). Mishler (1975) has contended that series of chained dialogue units are a feature of unnatural conversations in which an authority figure is prominent.

The third major finding suggests that students in the peer-led discussions were able to internalize the recognition and resolution of sociocognitive conflict. This conclusion is supported by students' performance on the Cognitive Conflict Scenario Task. Students in the peer-led condition were better able to recognize and resolve episodes of sociocognitive conflict than their teacher-led counterparts. This finding supports the notion that through interaction in groups, individual achievement is increased (Johnson, Johnson, Stanne & Garibaldi 1990; Yager, Johnson & Johnson, 1985) and suggests that some increased facility in recognizing and resolving conflict may be due to the greater verbalization that occurred in peer-led discussions.

Although the teacher-led students were better able to recognize the person experiencing the conflict in these episodes, this ability represents a more superficial level of recognition than the ability to recognize the event itself. If one is only able to recognize who did not understand something, one still may not be able to achieve the more important internal awareness of one's own incongruities or how to resolve them.

Theoretical and Practical Implications

The process of recognizing one's own cognitive incongruities and verbalizing them is central to conceptual change (Kuhn, 1989; Newkirk, 1984). This investigation revealed that the cognitive processes associated with the ability to recognize and resolve conflicts were internalized as evidenced by performance on the Cognitive Conflict Scenario Task.

Reader response theorists have argued that the process of updating one's interpretations of text based on transactions among one's background experiences, the text, and the context of the reading event are at the heart of constructing a meaningful interpretation (Bleich, 1978; Iser, 1980; Rosenblatt, 1938/1976). The results of this study support the Model of Sociocognitive Conceptual Change in Reading

(see Figure 1), in that the route an individual takes leading from recognition of conflict within one's interpretation, to verbalization of the conflict, to group discussion of the conflict, ultimately leads an individual to either reaffirm his or her original interpretation or leads the individual to conceptual change. Thus, in order to be able to update one's understanding in a literary sense, one must first be able to recognize that a piece of new information is incongruent with one's present interpretation of text. Once recognized, the conflict can be acted upon with the interpretation either remaining unchanged, or being updated as a result of the influx of new information. Once internalized, this process leads to engaged reading in which an active reader processes texts and constructs interpretations based on information from personal experiences, a particular text, and the context.

The results of this investigation have implications for classroom practice. Participation in peer-led discussions, as described in this investigation, provided students with opportunities to engage in higher-level thought processes as reflected by responses that were significantly more complex and elaborate than students' responses in teacher-led discussions. Teachers might make use of the benefits of peer-led discussions by incorporating them into their reading programs in a variety of formats. Whether students in a given classroom are reading multiple texts, a core piece of literature, or a selection from a basal reader, they can be grouped into smaller inquiry groups that have a peer-led format. Such groups would enable students to benefit from one another's insights across multiple texts.

Several possible explanations for the results of this investigation suggest the need for further empirical work. For example, peer-led discussions seem to offer students the opportunity to explore issues that are personally relevant. The sense of personal relevancy that emerges when students set the agenda in peer-led discussions enables students to take ownership of the discussion, thereby increasing engagement. Similarly, the atmosphere of tolerance for inquiry, multiple interpretations, and shared opinion that existed in the peer-led group seemed to permit students to challenge one another's ideas in a nonthreatening manner. Thus, it seems that the culture of the peer-led group fostered collaboration in the meaning construction process. Such tolerance may not have been imparted to students in the teacher-led groups where an authority figure was prominent. That is, students in teacher-led groups in which the teacher asks most of the questions and controls the discussion agenda may not feel that they are "allowed" to ask a question or to challenge others' ideas.

In conclusion, the results of this investigation provide consistent evidence that differences exist between peer-led and teacher-led discussions of narrative text as they relate to sociocognitive conflict. In this study, peer-led discussions offered opportunity for more verbalization both in terms of the quantity and quality of the discourse exchanged. The quality of children's thoughts and ideas about texts were enhanced through this verbalization. This investigation showed that peer-led discussions promote student verbalization, which is a key to promoting conceptual change. It appears that such change promotes internalization

of the ability to recognize and resolve conflicts — critical elements in becoming an engaged reader who capably updates and processes interpretations.

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APPENDIX A

Cognitive Conflict Scenario Task Pretest/Posttest

Purpose

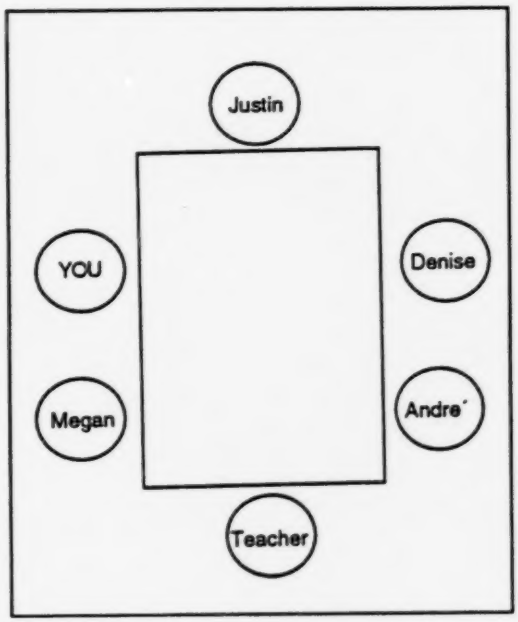
The CCST is a task designed to be administered individually to students before and after the study. The purpose of the task is to determine the degree to which students are capable of recognizing and resolving episodes of sociocognitive conflict as they occur in discussion scenarios.

Directions

(1) Familiarize yourself with the student in a natural manner so that he or she feels comfortable.

(2) Speak as naturally as possible, yet be sure to convey the following:

"Today I want you to pretend that you have just completed reading some short stories. You are about to join the following group of students and your teacher to discuss these pretend stories (show student the diagram and explain it). **Think about each situation carefully and describe how you would respond to each."**



(3) From the list of students provided, identify the random order in which to present scenarios to the student.

(4) Read the first scenario (in the prescribed order determined in step 3) aloud to the student.

(5) After reading the scenario, ask the student Questions 1-5 and then proceed with the next scenario always, following with Questions 1-5.

FORM A (Pretest Scenarios)

(a) You have just read a story about a character named Bill. Justin begins the discussion by reading this comment from his journal: "I didn't understand why Bill acted the way he did in the story."

Questions

1. What is going on in this discussion?
2. What would you do in this discussion? Why?
3. Who is having trouble understanding something in this discussion?
4. (if #3 is answered) How can you tell?
5. What would you do in this situation to help? Why?

(b) You have read a story in which one character, Mary, gets mad at her friend. While discussing the story, Megan says, "Mary wasn't a good friend." André says, "I agree with Megan, I don't think she was a very good friend either." You thought that Mary was a pretty good friend most of the time in the story — she was just having a bad day.

(c) After reading a different story, Megan says, "I thought that what was happening in the story was just a dream." When you read the story you did not think about that part being a dream.

(d) During the discussion of a different story, the teacher asks André, "How was the problem in the story solved in the end?" André replies, "I don't know. I'm not sure." You have a pretty good idea of how the problem in the story was solved.

FORM B (Posttest Scenarios)

(a) While discussing the story, Denise asks Justin how he liked the story. Justin says, "Well, I wrote in my journal that I didn't like it because I didn't understand why the two kids in the story were fighting."

(b) You have just read a mystery. During the discussion, André says, "I didn't think the character Francine was very helpful in solving the mystery." When you read the mystery you thought that Francine had been *very* helpful in solving the mystery.

(c) While discussing a story about a football game, the teacher asks, "Suppose we start off by talking about the names of the football teams that were playing." Denise says, "We didn't find out what the names of the teams were." The teacher says, "We didn't?" Justin replies, "Yes, we did!"

(d) You have read a story about a key with magical power. In the story the main character Ben gets into all kinds of trouble trying to use the key. During the discussion, Justin says, "Ben was brave to try to use the key to help other people." Megan says, "I don't agree. I think he was dumb because he got into trouble." At first you agreed with Justin, but after hearing what Megan said, now you're not sure.

APPENDIX B

Scoring Rubric for Cognitive Conflict Scenario Task

Recognition of Person Experiencing Conflict

2 = Those responses during Question 1 that evidenced accurate recognition of the person(s) in the scenario experiencing sociocognitive conflict.

1 = Those responses during Question 3 that evidenced accurate recognition of the person(s) in the scenario experiencing sociocognitive conflict.

0 = Responses that either failed to identify or incorrectly identified who experienced conflict, OR responses to Questions 1 and 3 that were in contrast to one another.

Recognition of the Conflict

2 = Those responses during Question 1 that evidenced accurate recognition of the conflict.

1 = Those responses during Question 4 that evidenced accurate recognition of what the conflict was OR incomplete recognition of what the conflict was during Question 1.

0 = Responses that either failed to identify or incorrectly identified what the conflict was, OR responses to Questions 1 and 4 that were in contrast to one another.

Ability to Resolve the Conflict

2 = **Full responses to Questions 1 and 2 that may include:**

a. giving the person experiencing misunderstanding information to help them understand

b. looking back in text and telling others in group results of search

c. finding out about or questioning another person's ideas and then sharing your own in order to come up with the best interpretation

d. asking people in the group to read the text again to see who was "right"

e. reinspecting the text to verify your own thoughts and then asking others in the group what they think about your idea

1 = **Partial responses to Questions 1 and 2 AND full responses to Questions 3 and 4 that may include:**

a. telling one person to look back in the text without stating that resolution was necessary

b. looking back in the text yourself without stating that resolution was necessary

c. telling your opinion without textual support that would verify

d. answer that relies on the teacher to resolve the conflict or to determine the correctness of one's thoughts

e. telling the teacher the answer without noting that the answer was given so as to resolve another person's conflict

0 = **Partial responses to all questions OR:**

a. No response

b. Student responds "I don't know."

c. Student does not respond in a way that answers the question or resolves the conflict

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